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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/069,588

02/27/2002

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7590

06/20/2006

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EXAMINER

CULBRETH, ERIC D

ART UNIT

PAPER NUMBER

3616

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/069,588	Applicant(s) AKUTAGAWA ET AL.	
	Examiner Eric Culbreth	Art Unit 3616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Upon review of the specification and in view of applicant's remarks, there is adequate disclosure of examples of actuators given on pages 25-27 of the original specification (thus obviating the rejection under 35 USC 112 1st paragraph). Although the specification does not disclose specifically what actuators would be employed for longitudinal and widthwise vibration, the examples given (waveform generators, dc motor output, steer motor) would be sufficient for the skilled artisan to extrapolate and use these devices to cause such vibration.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3-7 and 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 13-14, the recitation of "the first and second vibration are micro-vibrations having a higher frequency than a response frequency of change in a behavior of the vehicle" is indefinite because it is unclear what constitutes the "response frequency". Though this term is mentioned in the specification, it has not been defined. Since the "response frequency" is undefined, one cannot know what frequency would be "higher" than the response frequency. Therefore, it is impossible to determine the frequency level defined by the claim.

The examiner notes applicant's intention on page 8 of the 4/12/06 remarks to send a declaration supporting applicant's remarks that one of ordinary skill in the art would understand the meaning of "response frequency".

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3, 7, 11 and 15 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Baun (DE 3610519, of record).

Baun discloses a control system for a vehicle that works by the method of using an actuator to apply a medium to high frequency vibration to the tire (abstract and Figures 3-4). Because the actuator is angled with respect to the vertical (Figure 3), the vibration has a horizontal component that is applied in the width direction of the tire. Braun's high frequency is considered to be "higher" than a given response frequency of the vehicle, as is broadly claimed. As indefinitely and functionally recited, when the wheel is vibrated at an angle at high frequency, the coefficient of friction is reduced in the width direction of the tire between the tire and road inasmuch as applicant's disclosed invention. Regarding claims 3, 7, and 11, as the tire of Figure 3 vibrates at an angle, it also vibrates in the load direction (vertically) as broadly recited. Regarding claim 15, in reducing coefficient of friction, rolling resistance of the tire due to friction is also "minimized" inasmuch as applicant's disclosed invention.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 4-6, 12-14 and 16-18 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Baun.

Baun discloses the use of a medium to high frequency vibration, but fails to specify the amplitude of vibration amount (claims 4-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Baun to include the frequency ranges in claims 4-6 in order to maximize friction force between the tire and road surface. Further, the selection of optimum values within prior art general conditions is generally recognized as being within the level of ordinary skill in the art. Regarding claims 12-14, as with claim 15 above, in reducing coefficient of friction, rolling resistance of the tire due to friction is also "minimized" inasmuch as applicant's disclosed invention. Regarding claims 16-18, as Baun's tire in Figure 3 vibrates at angle, it also vibrates in the load direction (vertically).

Response to Arguments

8. Applicant's arguments filed 4/12/06 have been fully considered but they are not persuasive.

Applicant's remarks regarding "response frequency" have been addressed above.

Regarding the arguments on page 8 of the remarks that the examiner does not address limitations of reducing a coefficient of friction in a longitudinal direction of the tire and increasing a coefficient of friction in a width direction of the tire, these limitations of claim 1 were not addressed because they are not required by claim 1. Claim 1, lines 1-2 recite the control method comprising "one of" applying a first vibration and applying a second vibration. As long as only one of these first and second vibrations is met by the prior art, the claim is met, and the rejection of claim 1 above describes how Baun meets one of the vibrations.

Similarly, regarding the statement at the bottom of page 8 of the 4/12/06 remarks, the rejection above explains how Baun meets claims 3 and 15.

The rejection above addresses claims 16-18 as amended, and also addresses claims 4-6 and why they are obvious matters of design choice.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

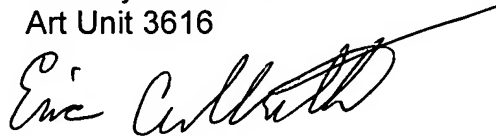
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Culbreth whose telephone number is 571/272-6668. The examiner can normally be reached on Monday-Thursday, 9:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 571/272-6669. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Culbreth
Primary Examiner
Art Unit 3616

A handwritten signature in black ink, appearing to read "Eric Culbreth", with a long horizontal flourish extending to the right.

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